

# **The association between consumer perception of brand sustainability and financial performance – evidence from Sweden**

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## **Abstract**

We examine if there is any association between how sustainable a brand is perceived to be by consumers, and the financial performance of the firm that owns the brand. To investigate this, we formulate three hypotheses. A first hypothesis looking at the association between consumers' brand sustainability perception (BSP) and profitability. A second hypothesis examining the relationship between BSP and firm risk defined as fluctuations in profitability. A third hypothesis explores the potential difference between how the social and the environmental dimension of BSP is associated with financial performance. We perform various multivariable regressions and Z-tests on an unbalanced panel dataset including brand-year observations of Swedish consumers' BSP between the years of 2011-2018 from both public and private Swedish companies ('Swedish Aktiebolag'). We find evidence that indicates a positive association between BSP and profitability. We do not find any statistically significant association between BSP and financial risk nor do we find any significant difference between how the social and the environmental dimensions of BSP relates to the financial performance measures. To the best of our knowledge, the research question investigated in this study has been unexplored to date. However, our findings are in line with previous research that suggests a positive association between sustainability reputation measures and financial performance metrics.

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<b>List of Abbreviations:</b>	BESP	Brand environmental sustainability perception
	BSP	Brand sustainability perception
	BSSP	Brand social sustainability perception
	CAR	Current asset ratio
	CFP	Corporate financial performance
	CLR	Current liability ratio
	CSP	Corporate social performance
	CSR	Corporate social responsibility
	DOA	Debt over assets
	ROA	Return on assets
	ROE	Return on equity

# Table of contents

<b>1. INTRODUCTION .....</b>	<b>4</b>
1.1 BACKGROUND .....	4
1.2 PURPOSE OF THE STUDY .....	5
1.3 DELIMITATIONS.....	6
1.4 OUTLINE .....	6
<b>2. PREVIOUS LITERATURE AND THEORETICAL FRAMEWORK.....</b>	<b>6</b>
2.1 SUSTAINABILITY DEFINITION.....	6
2.2 PREVIOUS RESEARCH ON SUSTAINABILITY AND FINANCIAL PERFORMANCE .....	7
2.2.1 Financial returns.....	7
2.2.2 Financial risk.....	8
2.3 REPUTATION AND FINANCIAL PERFORMANCE.....	8
2.3.1 Stakeholder theory.....	9
2.3.2 Resource-based view of competitive advantage.....	9
2.3.3 Hypothesis development.....	10
<b>3. METHODOLOGY .....</b>	<b>11</b>
3.1 RESEARCH DESIGN .....	11
3.2 DATA SOURCES .....	11
3.3 SAMPLE .....	11
3.4 TEST FOR H1 .....	14
3.4.1 A multivariable regression of the association between BSP and profitability .....	14
3.4.2 Variable descriptions.....	15
3.4.3 Robustness tests and other considerations.....	18
3.5 TEST FOR H2 .....	19
3.5.1 A multivariable regression on the association between BSP and fluctuations in profitability ...	19
3.5.2 Variable descriptions.....	20
3.5.3 Robustness tests and other considerations.....	22
3.6 TEST FOR H3 .....	23
3.6.1 Testing for significant differences between the betas of two explanatory variables.....	23
3.6.2 Other considerations .....	24
<b>4. RESULTS.....</b>	<b>24</b>
4.1 RESULTS FOR H1 .....	24
4.1.1 Descriptive statistics.....	24
4.1.2 Results of a univariate analysis .....	25
4.1.3 Results of a multivariable analysis .....	26
4.1.4 Results of the robustness tests for H1.....	26

4.2 RESULTS FOR H2 .....	28
4.2.1 Descriptive statistics.....	28
4.2.2 Results of a univariate analysis .....	28
4.2.3 Results of a multivariable analysis .....	29
4.2.4 Results of the robustness tests for H2.....	29
4.3 RESULTS FOR H3 .....	30
4.4 DIAGNOSTIC TESTS .....	32
4.4.1 Multicollinearity.....	32
4.4.2 Serial correlation .....	32
<b>5. DISCUSSION .....</b>	<b>32</b>
5.1 RESEARCH METHOD.....	33
5.1.1 Data selection.....	33
5.1.2 Issues relating to measuring brand's financial performance.....	33
5.1.3 Issues relating to measuring BSP .....	33
5.2 ANALYSIS OF RESULTS.....	34
5.2.1 Hypothesis 1 .....	34
5.2.2 Hypothesis 2 .....	35
5.2.1 Hypothesis 3a and 3b.....	35
<b>6. CONCLUSION .....</b>	<b>36</b>
<b>7. SUGGESTIONS FOR FUTURE RESEARCH .....</b>	<b>38</b>
<b>8. REFERENCES .....</b>	<b>39</b>
<b>9. APPENDIX.....</b>	<b>46</b>

# 1. Introduction

## 1.1 Background

*Our Common Future* (Brundtland, 1987) was published as an attempt to address the challenge of how to achieve environmentally and socially sustainable economic development. Concurrently, the widely used definition of sustainable development was coined: ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (United Nations General Assembly, 1987). Fast forward to 2019 when Greta Thunberg delivered the following statement in a speech at the UN Climate Change Conference COP25 (UN Climate Change, 2019):

*There is hope. I have seen it, but it does not come from the governments or corporations. It comes from the people... It is public opinion that runs the free world. In fact, every great change throughout history has come from the people.*

Given that people are willing to change and given that people are starting to live more sustainable lifestyles, should commercial companies follow? Friedman (1970) was one of the first to address such question through shareholder theory, arguing no, companies should not address social issues since the only social responsibility of business is to increase profits. However, research conducted since then has found various connections behind the well-debated topic of sustainability and financial performance (see for instance, Wood and Jones, 1995; Griffin and Mahon, 1997; Preston and O’Bannon 1997; McWilliams and Siegel, 2000; McWilliams and Siegel, 2001; Moore, 2001). Despite different viewpoints, the role of businesses in society is being challenged and the heightened awareness of sustainability calls for new approaches (Porter and Kramer, 2006).

In line with Thunberg’s suggestion, Becchetti (2011) argues that we are witnessing the development of a new economic democracy where concerned consumers can vote for action bottom-up. Becchetti (2011) goes on to state that a central driver of sustainable development is the ‘vote with wallet’ trend on the consumer side of the market economy. By purchasing products from firms that are sustainable, consumers award companies that create innovative economic value with positive social and environmental externalities (Becchetti, 2011).

Evidence of consumers taking such action can be found in the ‘Grab Your Wallet’ organisation that proposes economic boycotts towards companies with connections to U.S. President Donald Trump (Halzack, 2017). As a result of one such campaign, Ivanka Trump’s clothing line was dropped from major retailers and later filed for bankruptcy (Hanbury, 2018).

Moreover, according to The Global Economy’s (2020) most recent data, household consumption is over 60% of global GDP. Such number further supports Thunberg’s notion that individuals can collectively drive change - a phenomenon that has been labelled ‘the Greta Effect’ by the Economist (2019). Given these recent events, it appears as though Friedman (1970) did not account for a scenario where social- and shareholder value are converging. Following the growing awareness of sustainability and achieving Agenda 2030, consumers today may be more sensitive than ever to firms’ committing to a sustainable future. Consequently, it is important for firms to effectively communicate their commitment externally to be awarded. Thus, we identify a need to quantify if consumer perception of brand sustainability may be associated with financial performance.

## **1.2 Purpose of the study**

The purpose of this thesis is to investigate the association between consumer brand sustainability perception (hereon defined as ‘BSP’) and financial performance. The results of the study are of interest to many stakeholders, such as sustainability departments and marketing managers but also to corporate managers, investors and lenders as it explores the association with financial performance. Additionally, the study is of interest for parties wanting to explore BSP on a deeper level through its two dimensions, brand social sustainability perception (hereon defined as ‘BSSP’) and brand environmental sustainability perception (hereon defined as ‘BESP’). The study aims to address the following research question:

*Is there an association between consumer BSP and financial performance?*

The paper differentiates itself from previous literature by (1) using the consumer perception of brand sustainability as a sustainability measure, (2) examining the association between brand sustainability perception and financial performance where financial performance is measured as financial return and financial risk and, (3) explore the brand sustainability perception on an aggregated level, and at a disaggregated level through the environmental and social dimension.

### **1.3 Delimitations**

The study covers the time period 2011-2019, the limitation in time is set by the data available from the research agency SB Insights. We limit ourselves to data from the Swedish market and responses from Swedish consumers since scholars, such as McWilliams, Siegel and Wright (2006), have highlighted that corporate sustainability initiatives are subject to cross-country differences. Furthermore, we exclude the data on B2B brands as we are only interested in responses from individual consumers. Lastly, the scope of the study is limited to Swedish firms that have been included in the Sustainable Brand Index published by SB Insights.

### **1.4 Outline**

The first section has presented an introduction to the topic of sustainability and consumers perception of such in association with financial performance. Section two covers previous literature related to the subject and the theoretical framework used, concluding with our hypotheses. In the subsequent section three, the methodological approach is reviewed and motivated. Results from the regressions are presented in section four, together with robustness- and diagnostic tests. A discussion and analysis of the method and its results are provided in section five. The conclusions of the research are presented in section six, followed by suggestions for future research in section seven. Finally, references are provided in section eight and appendices in section nine.

## **2. Previous literature and theoretical framework**

In this section, we will present the literature and theories that our hypotheses are based on. First, we clarify how the sustainability measures we use relate to previous conceptualizations of sustainability. Secondly, we review previous studies on the association between sustainability measures and financial performance. Subsequently, we apply theories on reputation's role in such association before introducing our first two hypotheses. At last, we present literature on the consumer perception of the social and environmental dimensions of sustainability and conclude with our two final hypotheses of the study.

### **2.1 Sustainability definition**

Previous research on sustainability in accounting and management literature has studied different aspects of the concept. Consequently, different definitions and operationalizations of

sustainability performance have been used, which may explain the varying results (Ullmann, 1985). Examples of conceptualizations used when measuring sustainability include corporate social responsibility (CSR), corporate social performance (CSP), environmental performance (see amongst others, McGuire, Sundgren and Schneeweis, 1988, McWilliams and Siegel, 2000; Waddock and Graves, 1997; Miles and Covin, 2000), as well as more narrowly defined measures of sustainability performance, such as pollution control (Spicer, 1978). The focus of previous studies has been to use a measure of sustainability performance that captures an organisation's internal sustainability practices. The aim of this study is to capture the external view of a company's sustainability initiatives, the sustainability perception, not to focus on objective measures of sustainability. Therefore, our sustainability measure is not dependent on previous conceptualizations. The definition of sustainability used in this study is consistent with the definition used in SB Insight's survey that our data for BSP, BESP and BSSP is sourced from. Such definition is the UN's definition quoted in the introductory paragraph of this study (United Nations General Assembly, 1987).

## **2.2 Previous research on sustainability and financial performance**

### **2.2.1 Financial returns**

Previous research on the association between sustainability measures and financial returns has generated inconsistent findings. Scholars suggest that differences in methodology and choice of measures for sustainability and financial performance may explain the mixed results (Ullmann, 1985; Wood and Jones, 1995; Orlitzky et al., 2003). For instance, some studies have used environmental performance (for example, Russo and Fouts, 1997; Miles and Covin, 2000), whilst others have focused on the broader concept of CSP which includes a wide range of factors (Waddock and Graves, 1997; Roman, Hayibor and Agle, 1999). Yet, meta-analyses of the relationship have concluded that the association between sustainability measures and firm profitability measures are generally positive (Orlitzky et al., 2003; Allouche and Larouche, 2006; Margolis et al., 2007). Furthermore, Orlitzky et al. (2003) find that CSP reputation indices correlates higher with corporate financial performance (CFP) than other factors of the CSP measure. Additionally, they find that accounting-based measures of CFP are more highly correlated with CSP than market-based measures.

### **2.2.2 Financial risk**

The scarce research conducted on the association between sustainability and financial risk has also generated different results. Longstreth and Rosenbloom (1973) found that amongst investors, there exists an association between the risk-return profile of a firm's securities and the firm's attentiveness to social issues. Furthermore, institutional investors regard firms not addressing CSR as riskier investments (Bowman, 1973; Alexander and Buchholz, 1978). Spicer (1978) found that higher social performance ratings were associated with lower total and systematic risk, measuring total risk as the standard deviation of periodic stock returns and systematic risk as a security's beta. A negative association was also found between CSR and accounting-based risk, the latter accounted for by adjusting ROA figures for a firm's general risk characteristics according to Value Line's safety index (Aupperle, Carroll and Hatfield, 1985). In their meta-analysis of empirical studies on CSP and financial risk, Orlitzky and Benjamin (2001) conclude that CSP is negatively related to financial risk. Additionally, they find that of all CSP measures, reputation indices show the largest negative correlation with financial risk. As reviewed in section 2.2.1, Orlitzky et al. (2003) found that accounting-based financial returns measures correlated more with CSP than the market-based ones. However, when evaluating financial performance through financial risk, Orlitzky and Benjamin (2001) find that studies with accounting-measures of risk (such as,  $SD_{ROA}$  and  $SD_{ROE}$ ) show less correlation to CSP than studies using market risk measures.

In summary, the meta-analyses by Orlitzky and Benjamin (2001) and Orlitzky et al. (2003) find that CSP reputation indices appear to be an important factor in the association between corporate sustainability and financial performance. Simultaneously, the need for future research on the mediating role of intangible resources, such as reputation, and its association with financial performance has been distinctly identified by Grewatsch and Kleindienst (2017).

### **2.3 Reputation and financial performance**

Becchetti (2011) claimed that one reason for the connection between sustainability and financial performance is the positive impact that the perception of sustainability has on firm reputation. Previous research on the link between reputation and financial performance has been conducted with market-based reputational indices in the US, such as Fortune Magazines' ratings of corporate reputation that include perceptions from various stakeholders (for instance, McGuire et al., 1988; Fombrun and Shanley, 1990). Spicer (1978) for instance, examines how

investors' perception of a firm's social performance relates to its share-value and finds a significant positive association. However, to the best of our knowledge, no research has been done focusing only on the consumers' perception when studying reputation and its relationship with financial performance. Thus, no previous literature can be applied directly on our study. However, stakeholder theory and the resource-based view of competitive advantage provide helpful theoretical frameworks to identify the channels that may link sustainability reputation to financial performance.

### **2.3.1 Stakeholder theory**

Stakeholder theory implies that taking responsibility for sustainability involves shifting focus from shareholders to a larger set of stakeholders and thus, meeting demands from the external environment and promoting shared interests (Freeman, 1984). Good relationships with stakeholders generate a competitive advantage that translates into enhanced financial value (Wang and Choi, 2013). Conducting sustainable practices is suggested to result in that a firm is perceived as reliable and transparent, and such a reputation is beneficial towards stakeholders (McWilliams and Siegel, 2001). In this sense, reputation addresses the issue of asymmetric information between seller and buyer in the market through its signalling strategy to stakeholders (Schnietz and Epstein, 2005). Fombrun and Shanley (1990) state that the perception of firm's social responsiveness is directly associated with its reputation. Further, they argue that addressing social concern generates goodwill from consumers and other stakeholders and such translates into better profitability and viability in the long run.

### **2.3.2 Resource-based view of competitive advantage**

Secondly, the resource-based perspective of competitive advantage suggests that the positive relationship between sustainability and financial performance is derived from the enhanced internal resources and capabilities that sustainability practices imply, in turn, generating a competitive advantage (Russo and Fouts, 1997). An example of such an internal resource is the intangible concept of reputation (Hall, 1992). Sustainability has been identified as a crucial aspect of corporate reputation because it generates an inimitable competitive advantage through enhanced brand reputation (McGuire, Sundgren and Schneeweis 1988; Fombrun and Stanley, 1990; Porter and Kramer, 2006; Melo and Garrido-Morgado, 2011). Orlitzky et al. (2003) found that reputational indices of CSP correlate more with financial performance than any other sustainability performance indicator and thus encourage reputation building. Furthermore,

research by Larkin (2013) demonstrates that intangible assets, such as the brand, are important for financial stability.

### **2.3.3 Hypothesis development**

In summary, the stakeholder theory predicts that brands that address sustainability issues perform better financially. From the resource-based view of competitive advantage follows that sustainability practices generate brand reputation which translates into better financial performance. Given the mechanisms of these channels, we hypothesize that there is an association between BSP and financial performance. Our first two hypotheses are defined as:

*H<sub>1</sub>: There is a positive association between how sustainable a brand is perceived and its firm's financial returns*

*H<sub>2</sub>: There is a negative association between how sustainable a brand is perceived and its firm's financial risk*

Moreover, sustainability is a broad term and can be disaggregated through its social and environmental dimension (Carter and Rogers, 2008). Firms solicitous of the social dimension focus efforts on incorporating democracy, accountable governance structures and are concerned with establishing relationships with stakeholders, customers and society at large (Nikolaou, Ierapetritis, Tsagarakis, 2011). Meanwhile, the environmental dimension covers the company's effect on the environment and how it utilizes natural resources (Carter and Rogers, 2008; Jamali, 2006). Catlin, Luchs and Phipps (2017) highlight that the social and environmental dimensions of sustainability are perceived differently by consumers, both psychologically and theoretically. The authors state that the dimensions relate differently to consumer behaviour and sustainable consumption since the social dimension is characterized by short-term and local considerations, whilst the environmental is characterized by long-term and global considerations. Additionally, Orlitzky (2005) found that corporate environmental performance does not correlate as much with CFP as social performances. Given that literature suggests that social and environmental sustainability is distinct, both in the eyes of consumers and in the relationship with financial performance, we hypothesize that:

*H<sub>3a</sub>: There is a difference between how BESP and BSSP are associated with financial returns*

*H<sub>3b</sub>: There is a difference between how BESP and BSSP are associated with financial risk*

### **3. Methodology**

In this section we present a description of our sample and the filter process. Moreover, the regression models used for each hypothesis are introduced, followed by descriptions of the dependent, independent and control variables.

#### **3.1 Research design**

In accordance with Saunders, Lewis and Thornhill (2009), a quantitative and deductive approach is used to address the research question. Results will be generated by combining a dataset of Swedish consumers' BSP together with respective brands' financial data and conventional financial and non-financial control variables. The first two hypotheses,  $H_1$  and  $H_2$ , will be tested using two separate multivariable regression models, defined in 3.4.1 and 3.5.1 respectively. The third,  $H_{3a}$  and  $H_{3b}$ , will be tested using a calculated Z-score with input from the regressions for  $H_1$  and  $H_2$ .

#### **3.2 Data sources**

In this study secondary data is sourced from SB Insights, who finance and publish the Sustainable Brand Index report. The Sustainable Brand Index is the largest brand sustainability study in Europe. The financial data associated with the owner of each brand is accessed through Retriever Business who in turn, obtain their data from the Swedish Companies Registration Office ('Bolagsverket').

#### **3.3 Sample**

The dataset provided by SB Insights is limited to their selection of studied brands during the time period of 2011-2019 on the Swedish market. According to SB Insight, the purpose of this selection is to "create a selection that mirrors the brands that consumers meet in their everyday life". They include brands based on three parameters: 'Activity on the Market of the Country', 'Turnover & Market share' and 'General Brand Awareness' (SB Insights, 2020). Every brand included in our data set has been rated by at least 1000 respondents. According to SB Insights, the respondents are the "general public in each country, 16-75 years", a representation which is accomplished using quotas based on gender, age and geography. A table with the total number of respondents for each annual study is presented in Appendix 2. Furthermore, our data

set includes brands from 27 industries defined by SB Insights. A summary of the number of brand observations by industry is depicted in Appendix 1.

BESP, BSSP and BSP in our dataset are calculated by SB Insights using a top box method and displayed as the percentage of respondents who claim they are positive towards respective brand's sustainability efforts (SB Insights, 2020). Specifically, BESP is the percentage (0% - 100%) of respondents that claim they are positive towards respective brand's environmental sustainability efforts. BSSP is the percentage (0% - 100%) of respondents that claim they are positive towards respective brand's social sustainability efforts while BSP is the sum of the two (i.e. takes on values between 0% - 200%). All scores are adjusted for brand awareness, implying that scores are only included if the respondent recognized the brand in question.

Before filtering on a panel data level with brand-year observation, we filter the list of brands included in the original surveys. Each brand is assigned its corresponding Swedish firm, i.e the legal entity that is registered as the owner of the brand and that captures the Swedish revenues generated by the brand. Out of the original sample of 325 unique brands, 303 were linked to a Swedish registered firm. Within consolidated markets, such as the food and hotel industry, some brands are run and owned by the same firms. Among the 303 unique brands, there are only 263 unique firms, implying that 40 brands share the same financial data with at least one other brand. We address this issue and account for the repeated financial observation in our regression models in section 3.4.1 and 3.5.1.

Finally, only Swedish limited liabilities companies ('Swedish Aktiebolag') are included for financial comparability and data availability, resulting in the exclusion of 13 firms. Firms that have been acquired or gone bankrupt during the time period of 2011-2018, are also excluded. Lastly, customer-owned firms were excluded since their financial data is incomparable with the rest of the brands in our sample given the distinct financial incentives.

The preliminary sample consist of 285 brands and 245 firms forming an unbalanced panel dataset of 2,278 brand-year observations between the period 2011-2018. From here, observations with missing values for return on assets (ROA), return on equity (ROE), sales growth, debt over assets (DOA), current liability ratio (CLR), current asset ratio (CAR), firm size, organisation number, industry, BSP, BESP and BSSP were dropped. Moreover, year observations with a CAR or/and CLR or/and DOA ratio greater than 1 were excluded from the

sample since such a number would indicate a calculation error. Lastly, firm-year observations were removed when the sum of total equity and liabilities did not equate to total assets. This filter process yields a final sample of 1,455 brand-year observations from 265 brands and 228 firms. A table illustrating total dropped values split between specific filter can be found in Table 1 below.

<b>Table 1.</b> The sample filtering process	# of brand-year obs.	# of unique brands	# of unique firms
Original Sample		325	N/A
Brands with linked Swedish firm		303	263
Keep only limited liability firms (Swedish AB)		(13)	(13)
Exclude firms who have gone bankrupt (2010-2018)		(1)	(1)
Exclude firms who have gone through M&A (2010-2018)		(1)	(1)
Exclude firms who are customer owned		(3)	(3)
Preliminary panel dataset	2,278	285	245
<i>Financial data check</i>			
Drop if ROA is missing (ROA==.)	(1)		
Drop if SalesGrowth is missing (SalesGrowth==.)	(33)		
Drop if DOA is missing (DOA==.) or if DOA is greater than 1 (DOA>1)	(4)		
Drop if CAR is missing (CAR==.) or if CAR is greater than 1 (CAR>1)	(4)		
Drop if CLR is missing (CLR==.) or if CLR is greater than 1 (CLR>1)	(11)		
<i>Sustainable data check</i>			
Drop if BSP is missing (BSP==.)*	(770)		
	1,455	265	228

\*The reason for the high amount of missing BSP-values is due to the fact that brands have been added from year to year. For example, a brand that was first included in 2016 have five missing values (2011-2015).

To address the effect of outliers on the results of the regression analysis for our sample - data for ROA and sales growth (used as proxies for *Prof* and *SalesGrowth*), have been winsorized at the 1st and 99th percentile. ROE, later used for the robustness test, has been winsorized at the 5th and 95th percentile due to its sensitive characteristic and relatively small denominator. See Appendix 3 for a histogram illustrating the spread of ROE.

### 3.4 Test for H<sub>1</sub>

The first hypothesis of this study aims to examine any potential association between BSP (*BSP*) and firm profitability (*Prof*).

#### 3.4.1 A multivariable regression of the association between BSP and profitability

To test H<sub>1</sub>, we run a multivariable regression to identify any linear relationship between the independent variable, *BSP*, and the dependant variable, *Prof*.

To test whether a random- or a fixed effect model is the most appropriate model for the given test and variables, we performed a Hausman specification test. Such test rejected the null hypothesis, being that a random effect model is the appropriate model, since it yielded a  $Prob > \chi^2$  of 0.0000. The result suggests that there is a correlation between the independent variables of the model and its error term and consequently, supports the use of a fixed effect model (Hausman and Taylor, 1981). Accordingly, the ordinary least square (OLS) regression will be a multivariable model controlling for year and industry fixed effects. Such fixed effects will control for some of the endogeneity manifested in unobserved heterogeneity and for the time invariant characteristics of industries and firms (Bozyel and Salah, 2017). Moreover, we cluster our standard errors by firm for two reasons. Firstly, because we need to account for the repeated observations given that our sample has more brands than firms, as mentioned in section 3.3. Secondly, to address the potential serial correlation discussed further in section 4.4.2.

Lastly, previous similar studies have often assumed sustainability measures to be sticky and to have a sticky effect on financial performance, meaning it takes time for the non-financial measure to translate into financial measures (Waddock and Graves, 1997). The most common approach to address this phenomenon is to include lagged variables. In line with Waddock and Graves (1997), we create a 1-year lag between our independent sustainability variables *BSP*, *BESP* and *BSSP* and our dependent variables. Given the above, we form the following regression model for H<sub>1</sub>:

$$\begin{aligned} Prof_{i,t} = & \beta_0 + \beta_1 BSP_{i,t-1} + \beta_2 PastProf_{i,t} + \beta_3 FirmSize_{i,t} + \beta_4 DOA_{i,t} + \beta_5 CAR_{i,t} + \beta_6 CLR_{i,t} \\ & + \beta_7 SalesGrowth_{i,t} + \beta_8 Year_t + \beta_8 Industry_i + \varepsilon_{i,t} \end{aligned}$$

where  $Prof_{i,t}$  is the dependent variable,  $BSP_{i,t-1}$  is the primary independent variable,  $PastProf_{i,t}$ ,  $FirmSize_{i,t}$ ,  $SalesGrowth_{i,t}$ ,  $DOA_{i,t}$ ,  $CLR_{i,t}$  and  $CAR_{i,t}$  are all control variables.  $Year_t$  and  $Industry_i$  control for industry and year fixed effects respectively and  $\varepsilon_{i,t}$  is the error term.  $i$  is the cross-sectional unit, Brand, and  $t$  is the year of the observation. The model tests our null hypothesis that there is no association between how sustainable a brand is perceived to be and its firm's financial returns:  $\beta_1 = 0$ .

### 3.4.2 Variable descriptions

#### Profitability as dependant variable

In organisational research, a wide range of performance metrics have been used as dependent variables to capture the firm's ability to produce economic value (Walsh, Weber, and Margolis, 2003). In general, financial performance can be captured through market-based or accounting-based returns (Orlitzky, Schmidt and Rynes, 2003). Since our sample almost exclusively contains privately held companies, we will use accounting returns. Abigail and Siegel (2000) state that measures such as ROA can be used to demonstrate how well a firm utilizes its assets for value generation and growth. Furthermore, ROA is proposed as the most accurate metric to measure a company's profitability performance given that it regards how efficiently assets are used to support activities (Brine, Brown and Hackett, 2006; Lin, Yang and Liou, 2009; Nelling and Webb, 2009). Additionally, Orlitzky et al. (2003) state that ROA is often used when examining the relationship between a sustainability metric and financial performance. Based on the above, we will use ROA when examining profitability. It is defined in line with Penman (2010) as:

$$Prof_{i,t} = ROA_{i,t} = \frac{EBIT_{i,t}}{Avg(Total\ Assets_{i,t} + Total\ Assets_{i,t-1})}$$

The nominator, income before interest expenses and taxes (EBIT), is used as it is an income metric relevant for all the suppliers of capital, both shareholders and lenders (Benecke and Fredriksson Lindmark, 2017). To provide an accurate reflection of assets deployed to generate the earnings, the average of the opening- and closing value of total assets is used as the denominator.

### **Lagged BSP as primary independent variable**

Lagged *BSP* is the primary independent variables used for testing  $H_1$ . The variable is the percentage of Swedish consumers who claim they are positive towards respective brand's sustainability efforts, both social sustainability efforts and environmental sustainability efforts. The variable can be defined as:

*BSP*<sub>*i,t-1*</sub>: How overall sustainable consumers perceive a brand, *i*, to be at time, *t* – 1

### **Control variables**

To control for potentially influential factors that might cause biased estimators if excluded (Saunders, Lewis and Thornhill, 2012), we have chosen multiple firm level control variables based on findings in previous literature below.

***PastProf*** - When measuring non-financial metrics in the context of financial performance, one should control for past financial performance (Ittner and Larcker, 1998). According to Ittner and Larcker this applies for time-series trends as well as incremental information on future performance. Eklöf et al. (2016), who studied relationships between customer perception measures and financial performance, propose using a lagged profitability metric as control variable when predicting profitability. Following Ittner and Larcker (1998) and Eklöf et al. (2016), we include past profitability in our model defined as:

$$PastProf_{i,t} = Prof_{i,t-1}$$

***FirmSize*** - According to Majumdar (1997) and Penrose (1995), due to economies of scale and the formalisation and implementation of cost- and time-efficient operations - larger firms are superior to smaller firms in terms of profitability. Consequently, we expect a positive relationship between *FirmSize* and *Prof*. Furthermore, we expect a positive correlation between *FirmSize* and our independent variable, *BSP*, since Waddock and Graves (1997) find that large companies are more commonly engaged in sustainability activities. In line with Anton (2019) and Alam, Uddin and Yazdifar (2019), *FirmSize* is defined as:

$$FirmSize_{i,t} = \text{Natural logarithm (ln) of Total assets}_{i,t}$$

***DOA*** - Many researchers, such as Lazăr (2016), find the leverage ratio to be a key determinant of a firm's financial performance. Both Ibhagui and Olokoyo (2018) and Myers (1977) argue that debt, beyond associated interest expenses, implies agency costs and underinvestment

problems and therefore weakens firm profitability. Following Alam et al. (2019) we expect a negative correlation between leverage and *Prof*, defining leverage as:

$$DOA_{i,t} = \frac{Total\ liabilities_{i,t}}{Total\ assets_{i,t}}$$

**CLR** - DOA controls for the debt level in the capital structure but not for the composition of debt. Given that SMEs often face constraints in long term financing (Lyngstadaas and Berg, 2016), we expect that the SMEs in our sample exhibit higher level of current liabilities than the larger firms. To account for the different compositions of liabilities and the impact on firm profitability, we include CLR. Following Pais and Gama (2015), we define it as:

$$CLR_{i,t} = \frac{Current\ liabilities_{i,t}}{Total\ liabilities_{i,t}}$$

Regarding the relationship between *CLR* and *Prof*, current liabilities can serve as a cost-efficient source of financing since it seldom involves explicit interest payments, on the one hand. On the other hand, studies have shown that its implicit costs, such as an increase in cost of sales, can temporarily decrease firm profitability (Petersen and Rajan, 1997; Yazdanfar and Öhman, 2014). Overall, there is historical evidence suggesting a positive relationship between CLR and ROA (Pais and Gama, 2015; Lyngstadaas and Berg, 2016). Accordingly, we expect to find a positive correlation too.

**CAR** - Regarding the composition of assets, a large part of SME's are invested in current assets that are expected to generate lower returns than long term investments which implies a negative effect on their profitability (Asimakopoulos, Samitas, and Papadogonas, 2009; Baños-Caballero, García-Teruel, and Martínez-Solano, 2012). Meanwhile, a high ratio of current assets supports growth, implies greater operational flexibility, serves as a safety margin and therefore increases long term profitability (Deloof, 2003; Eljelly, 2004; Pais and Gama, 2015). Similar to the case of CLR, the majority of previous studies suggest a positive relationship between CAR and ROA (Pais and Gama, 2015; Lyngstadaas and Berg, 2016). Consequently, we expect *CAR* to have a positive relationship with *Prof* and define it as:

$$CAR_{i,t} = \frac{Current\ Assets_{i,t}}{Total\ Assets_{i,t}}$$

**SalesGrowth** - Fabozzi (1998) concludes that firm growth can be a good indicator of the firm's financial performance and hence has a positive relationship with profitability. Brush, Bromiley and Hendrickx (2000) and Jovanovic (1982) argue that firm growth, or growth in sales, can attract talented employees, motivate managers, provide extra market power and therefore increase firm profitability. Therefore, we include *SalesGrowth* in our regression, expecting a positive relationship with *Prof*. Following Alam et al. (2019) it is defined as:

$$SalesGrowth_{i,t} = \frac{Sales_{i,t}}{Sales_{i,t-1}} - 1$$

**Year** - Moreover, we include a year dummy, *Year*, to account for yearly variations and control for year fixed effects. The dummy can capture the macro level factors, such as the fluctuations in the economy. Such factors have been proven to play a substantial role in a firm's financing decisions, overall operations and its profitability (Enqvist, Graham and Nikkinen, 2014).

**Industry** - Finally, the magnitude of industry effects on firm performance is a well-debated topic (Schmalensee, 1975; Rumelt, 1991; Powell, 1996; Waring, 1996). The consensus is that factors, such as different competitive intensities and economies of scales, may explain some of the variation in profitability across firms. To account for this and to control for industry fixed effects, we include an industry dummy, *Industry*.

### 3.4.3 Robustness tests and other considerations

For a preliminary understanding of the variables included in the model specified in section 3.4.1, a Pearson's correlation matrix is carried out. Such a pairwise correlation analysis investigates the dependence between the independent and dependent variables and the interrelationships among all the variables, including the control variables. Besides providing a preliminary indication of our results in the context of our hypothesis  $H_1$ , this degree of pairwise relationships, in combination with a VIF-analysis, is used to test the level of multicollinearity in our model (Pallant, 2011). The issue of multicollinearity is further discussed in section 4.4.1.

In order to explore the robustness of our main results for  $H_1$ , we have identified three technical assumptions we believe are crucial in terms of forming the validity of our method. The assumptions are (1) including *PastProf* as suggested by Ittner and Larcker (1998), (2) the sticky effect sustainability metrics has on financial measures (Waddock and Graves, 1997) and, (3) the choice of ROA as the proxy for *Prof* (Abigail and Siegel, 2000).

In an effort to examine the assumptions' effect on our results, we have run six robustness regressions. Note that, in an effort to keep all regressions apart, regressions in the study have been assigned a number between I-XIV. Regressions (X), (XI) and (XII) have excluded *PastProf* as a control variable. Regression (XIII) tests for the association between *BSP* and *Prof* where *Prof* is measured as ROE instead of ROA. Finally, we test different lags for our independent variable *BSP*; no-year lag for regression (VIII) and (X), 1-year lag for regression (XI) and (XIII) and 2-year lag for regression (IX) and (XII). The results can be found in Appendix 7 and are discussed in section 5.2.1.

### 3.5 Test for H<sub>2</sub>

The second hypothesis of our study aims to examine any relationship between the rolling averages of *BSP* (*AvgBSP*) and fluctuations in profitability (*ProfFluc*).

#### 3.5.1 A multivariable regression on the association between *BSP* and fluctuations in profitability

To test our second hypothesis, another OLS regression is performed. The features of this model are similar to the model presented in section 3.4. The differences are (1) a different dependent variable, (2) 3-year rolling averages instead of annual observations and (3) some other control variables. We estimate the following regression model for H<sub>2</sub>:

$$ProfFluc_{i,(t-2)-t} = \beta_0 + \beta_1 AvgBSP_{i,(t-2)-t} + \beta_2 AvgFirmSize_{i,(t-2)-(t)} + \beta_3 AvgDOA_{i,(t-2)-(t)} \\ + \beta_4 AvgSalesGrowth_{i,(t-2)-t} + \beta_5 AvgROA_{i,(t-2)-t} + \beta_6 Year_t + \beta_7 Industry_i + \varepsilon_{i,t}$$

where  $ProfFluc_{i,(t-2)-t}$  is the dependent variable,  $AvgBSP_{i,(t-2)-t}$  is the main independent variable,  $AvgFirmSize_{i,(t-2)-t}$ ,  $AvgSalesGrowth_{i,(t-2)-t}$  and  $AvgROA_{i,(t-2)-t}$  are all control variables.  $Year_t$  and  $Industry_i$  control for industry and year fixed effects respectively and  $\varepsilon_{i,t}$  is the error term.  $i$  is the cross-sectional unit, Brand, and  $t$  is the year of the observation. This model tests our null hypothesis that:  $\beta_1 = 0$ .

Identically to the regression in H<sub>1</sub>, we cluster the standard errors to (1) account for repeated values and, (2) address the potential effect that any existing serial correlation has on our model. The issue of serial correlation is further discussed in section 4.4.2. Furthermore, a Hausman

specification test was performed for the variables defined above. The test generated a  $Prob > \chi^2$  of 0.0000 which supports the notion of a fixed effect model being the appropriate model (Hausman & Taylor, 1981).

### 3.5.2 Variable descriptions

#### Fluctuations in profitability as dependant variable

There are multiple measures of firm risk, many of which are generated through stock data. Since our firm sample almost exclusively consist of privately held firms, we rely on an accounting-based metric of firm risk. One accounting-based metric often used as a proxy for firm risk is the fluctuations in profitability, captured through the standard deviation of a firm's ROA (Boubaker and Nguyen, 2019). This is in line with Spicer (1978) who argues that financial risk can be measured through variance in earnings. Given the previous literature, this study will use annual ROA, and measure the standard deviations based on the three most recent annual observations. Fluctuations in profitability is defined as:

$$ProfFluc_{i,(t-2)-t} = SD(ROA)_{i,(t-2)-t}$$

$SD(ROA)_{i,(t-2)-t}$  = The standard deviation of ROA between the years of  $(t - 2)$  and  $t$

$$where ROA_{i,t} = \frac{EBIT_{i,t}}{Avg(Total Assets_{i,t} + Total Assets_{i,t-1})}$$

#### Rolling averages of BSP as primary independent variable

To test  $H_2$ , we use similar independent variable as in  $H_1$  but we look at 3-year rolling averages. The reasoning behind this choice is to match the time series of the independent variables with the time series used to calculate our dependant variable. The variable can be defined as:

$$AvgBSP_{i,(t-2)-t} : Average BSP between the years of  $t - 2$  and  $t$$$

#### Control variables

Previous literature suggests that firm risk, measured as fluctuations of profitability, is influenced by multiple factors. The most common accounting-based variables are presented below.

**AvgFirmSize** - As previously stated, larger firms are superior to smaller firms in terms of profitability (Penrose ,1959; Majumdar, 1997). Moreover, large firms tend to have good risk

management capacity and therefore are expected to have less fluctuations in profitability (Fama and French, 1995). Consequently, we expect a negative correlation between *AvgFirmSize* and *ProfFluc*. *AvgFirmSize* is a 3-year rolling average and based on Alam et al. (2019) and Anton (2019), is defined as:

*AvgFirmSize*<sub>*i,(t-2)-t*</sub>: Average of the natural logarithm (ln) of the yearly observed assets between the years of *t - 2* and *t*

Following the discussion in section 3.4.2, we expect a positive correlation between *AvgFirmSize* and our independent variable, *AvgBSP*, since large companies are more frequently engaged in sustainability activities (Waddock and Graves, 1997).

***AvgDOA*** - Modigliani and Miller (1958) found leverage to be associated with more volatile profits and Baxter (1967) showed a positive correlation between level of debt and financial risk. Following El Ghouli et al. (2011), we therefore include leverage as a control variable, expecting to find a positive relationship with *ProfFluc*. Following Alam et al. (2019) and Anton (2019), 3-year rolling average leverage is defined as:

*AvgDOA*<sub>*i,(t-2)-t*</sub>: Average of DOA between the years of *t - 2* and *t*

$$\text{Where } DOA_{i,t} = \frac{\text{Total liabilities}_{i,t}}{\text{Total assets}_{i,t}}$$

***AvgSalesGrowth*** - Fabozzi (1998) concludes that firm growth can be a good indicator of the firm's financial performance and El Ghouli et al. (2011) state that there is a positive relationship between firm growth and firm risk. Thus, we include *AvgSalesGrowth* in our model and expect a positive relationship with *ProfFluc*. In line with Alam et al. (2019), it is defined as:

*AvgSalesGrowth*<sub>*i,(t-2)-t*</sub> = Average of SalesGrowth between the years of *t - 2* and *t*

$$\text{where } SalesGrowth_{i,t} = \frac{Sales_{i,t}}{Sales_{i,t-1}} - 1$$

***AvgROA***: According to conventional economic theories, such as Modern Portfolio Theory and the Capital Asset Pricing Model, high returns are associated with high risk (Sharpe, 1964; Markowitz, 1991). However, previous literature suggests that sustainability measures correlate positively with profitability and negatively with fluctuations in profitability. Thus, somewhat contradicting the concept of high-returns-high-risk. Out of curiosity, and in an effort to address this contradiction, we ran a regression between *Prof* with *ProfFluc* on our sample and found a

negative correlation (see regression (VII) in Appendix 5). Regardless of the reasons for this result, we acknowledge that *Prof* to some degree is associated with *ProfFluc* for our sample. Accordingly, we include *AvgProf* as a control variable to avoid omitted biases. We expect a negative correlation with *ProfFluc* and define *AvgProf* as:

$$AvgProf_{i,(t-2)-t} = \text{Average of Prof between the years of } t - 2 \text{ and } t$$

$$\text{where } Prof_{i,t} = ROA_{i,t} = \frac{EBIT_{i,t}}{Avg(\text{Total Assets}_{i,t} + \text{Total Assets}_{i,t-1})}$$

**Year** - Identically with the model for  $H_1$ , we account for possible yearly variations by including a year fixed effect in the form of year dummies, *Year*. The dummies can capture macro level factors, such as the fluctuations in the economy, that have been found to play a substantial role on a firm's financing decisions, overall operations and consequently, its financial volatility (Enqvist et al., 2014).

**Industry** - Furthermore, to account for the differences in level of risk between different industries and in accordance with previous studies (such as Margolis and Walsh, 2001), we include 27 industry dummies that represent the 27 predefined different industries (defined by SB Insights, see appendix 1) of our sample. Hence, the model account for industry fixed effects.

### 3.5.3 Robustness tests and other considerations

The reasoning behind not choosing a longer period than 3-year rolling averages has to do with our sample's limited amount of annual observations. There is a trade-off between the quality and the quantity of our data; using longer rolling standard deviations might capture fluctuations in profitability more accurately but result in a smaller sample. We use the same sample as in  $H_1$ , (with 1,455 brand year observations) to test  $H_2$ . However, when creating the 3-year rolling averages and 3-year rolling standard deviations, a total of 533 observations were omitted due to missing values. Additional missing values arose when generating 4- and 5-year rolling variables. To address this trade-off, we will perform the robustness tests with 4- and 5-year rolling variables. The results of such are found in Appendix 7 and discussed in section 4.2.4.

### 3.6 Test for H<sub>3</sub>

The third hypothesis of our study aims to explore the disaggregated dimensions of sustainability: environmental- and social sustainability. H<sub>3a</sub> will examine the potential difference between the two dimensions' association with firm profitability (addressed in H<sub>1</sub>). H<sub>3b</sub> will examine the potential difference between the two dimensions' association with firm risk (addressed in H<sub>2</sub>).

#### 3.6.1 Testing for significant differences between the betas of two explanatory variables

We will test H<sub>3a</sub> by conducting a Z-test for the null hypothesis that there is no difference between the two regression coefficients for  $BESP_{i,t-1}$  and  $BSSP_{i,t-1}$  ( $\beta_{BESP} = \beta_{BSSP}$ ). The coefficients are generated through running the main model defined for H<sub>1</sub> but with two different dependant variables:

*BESP<sub>i,t-1</sub>: How environmentally sustainable consumers perceive a brand, i, at time t – 1*

*BSSP<sub>i,t-1</sub>: How socially sustainable consumers perceive a brand, i, at time t – 1*

We will test H<sub>3b</sub> by conducting a Z-test for the null hypothesis that there is no difference between the two regression coefficients for  $AvgBESP_{i,(t-2)-t}$  and  $BSSP_{i,(t-2)-t}$  ( $\beta_{AvgBESP} = \beta_{AvgBSSP}$ ). These coefficients are generated through running the main model defined for H<sub>2</sub> but with two different dependant variables:

*AvgBESP<sub>i,(t-2)-t</sub>: Average BESP between the years of t – 2 and t*

*AvgBSSP<sub>i,(t-2)-t</sub>: Average BSSP between the years of t – 2 and t*

In detail, we follow Paternoster, Brame, Mazerolle and Piquero (1998), who apply the following formula when conducting a Z-test for difference between two regression coefficients (initially used by Clogg, Petkova and Haritou (1995)):

$$Z = \frac{\beta_a - \beta_b}{\sqrt{SE\beta_a^2 + SE\beta_b^2}}$$

where  $SE\beta_a$  is the standard error of  $\beta_a$  and  $SE\beta_b$  the standard error of  $\beta_b$ .

### 3.6.2 Other considerations

An alternative approach to the method derived by Clogg et al. (1995), is to run the primary regressions for  $H_1$  and  $H_2$  and include both *BESP* and *BSSP* (for the model testing  $H_1$ ) and both *AvgBESP* and *AvgBSSP* (for the model testing  $H_2$ ). Then, through a post estimation command, test if these coefficients are significantly different from each other, i.e. test  $H_{3a}$  and  $H_{3b}$ . However, since the two variables, *BESP* and *BSSP*, are highly correlated with each other (see Appendix 6 for scatter plots and OLS fitted lines between the four variables), we follow the recommendations from Paternoster et al. (1998) and do not include them in the same regression since this might lead to a false rejection of the null hypothesis.

## 4. Results

In this section we present descriptive statistics for the variables used for all of the hypotheses as well as the respective regression results. Additionally, we provide univariate analyses in the form of Pearson correlation matrices and finally, we present the test results associated with the robustness and diagnostics tests.

### 4.1 Results for $H_1$

#### 4.1.1 Descriptive statistics

Table 2 shows descriptive statistics for the variables in the main regression model. We note that the mean profitability in our sample was 7.3% with a standard deviation of 12.5%, suggesting that the variation of profitability across firms is rather large.

**Table 2:** Summary statistics for H<sub>1</sub>

Variables	Obs.	Mean	Std. Dev.	Min	Max
<i>Prof</i>	1,455	0.073	0.125	-0.444	0.556
<i>BSP</i>	1,455	0.340	0.183	0.086	1.216
<i>DOA</i>	1,455	0.580	0.225	0.000	0.999
<i>CAR</i>	1,455	0.645	0.295	0.001	1.000
<i>CLR</i>	1,455	0.495	0.239	0.001	0.996
<i>SalesGrowth</i>	1,455	0.076	0.265	-0.440	2.060
<i>FirmSize</i>	1,455	14.020	2.056	7.497	20.085

*Prof*, and *SalesGrowth* have been winsorized at 1st and 99th percentile.

#### 4.1.2 Results of a univariate analysis

The results from a pairwise correlation matrix for the variables included in regression (I) for H<sub>1</sub> are presented in Table 3 below. Firstly, the results confirm that all independent variables except for CLR have some association with *Prof*. Secondly, the results indicate significant intercorrelations between the independent variables, especially between *FirmSize* and *BSP* and thus, multicollinearity may distort the regression results. To address this, a VIF-test was carried out which confirmed that multicollinearity do exist but not on a severe level. The matter is further discussed in section 4.4.1.

**Table 3:** Pearson's correlation matrix for regression (I) run for H<sub>1</sub>

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) <i>Prof</i>	1.000							
(2) <i>BSP</i>	0.103***	1.000						
(3) <i>PastProf</i>	0.817***	0.097***	1.000					
(4) <i>DOA</i>	-0.061**	0.067**	-0.030	1.000				
(5) <i>CAR</i>	0.061**	-0.163***	0.046	0.128***	1.000			
(6) <i>CLR</i>	0.019	-0.016	0.046	0.767***	0.450***	1.000		
(7) <i>S.Growth</i>	0.068***	0.009	0.053*	0.070**	0.002	0.053**	1.000	
(8) <i>FirmSize</i>	-0.010	0.209***	-0.022	-0.067**	-0.457***	-0.286***	-0.037***	1.000

The table presents the Pearson correlation coefficients between variables included in regression (I). Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). The results presented in the table are after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level. *BSP* is a lagged variable (n-1).

### 4.1.3 Results of a multivariable analysis

The results of our regression (I) for  $H_1$  are presented in Table 4 on the next page and the results from regression (II) and (III) are discussed in section 4.3. Regression (I) confirms the positive association between *BSP*, and *Prof* initially found in the univariate analysis. *BSP* has a positive coefficient of 0.031 with a t-statistic of 2.23 and thus, is statistically significant on a 5% level. The interpretation of the result is that, holding all else equal, one percentage point increase in *BSP* generates 0.031 percentage points higher profitability.

All significantly correlated control variables, except *DOA*, have a positive coefficient, in line with what previous research suggested. The adjusted  $R^2$  for regression (I) was 0.677, indicating that the explanatory power by the independent variables of our model is relatively high. The majority of this explanatory power may come from the inclusion of lagged ROA, *PastProf*, which yields a coefficient of 0.795 and t-statistic of 28.34. This variable in the context of  $R^2$  is discussed further in section 4.1.4.

### 4.1.4 Results of the robustness tests for $H_1$

The results of the robustness tests are presented in Appendix 6. First and foremost, comparing our main results with the results generated when excluding *PastProf* as a control variable in regression (XI), finds that the coefficient of *BSP* remain positive but its t-statistic drops from 2.23 to 1.52. Consequently, the positive correlation is no longer statistically significant. Furthermore, the exclusion leads to a drop in the adjusted  $R^2$  from 0.677 to 0.099. The results from regression (XIII), where *Prof* is measured through ROE instead of ROA, finds no statistically significant correlation between *BSP* and *Prof* with a t-statistic of 0.07 for the *BSP* coefficient. This is further discussed in section 5.2. Lastly, regression (VIII) and (X), for no lags in *BSP*, generate insignificant t-statistics of 1.56 and 1.40 respectively while regression (IX) and regression (XII), for 2-year lags, generate significant t-statistics of 2.23 and 1.66 respectively. This implies that the correlation is stronger between lagged *BSP* and *Prof* than between non-lagged *BSP* and *Prof*.

**Table 4:** Regression results for hypothesis H<sub>1</sub>

Dependent:		<i>Prof<sub>i,t</sub></i>		
Regression nr.		(I)	(II)	(III)
Independent variables:	Expected sign:	(H <sub>1</sub> )	(H <sub>3a</sub> )	(H <sub>3a</sub> )
<i>BSP<sub>i,t-1</sub></i>	+	0.031** (2.23)		
<i>BESP<sub>i,t-1</sub></i>	+		0.047** (2.04)	
<i>BSSP<sub>i,t-1</sub></i>	+			0.080** (2.43)
<i>PastProf<sub>i,t</sub></i>	+	0.795*** (28.24)	0.795*** (28.21)	0.795*** (28.25)
<i>FirmSize<sub>i,t</sub></i>	+	-0.001 (-0.80)	-0.001 (-0.72)	-0.001 (-0.89)
<i>SalesGrowth<sub>i,t</sub></i>	+	0.028* (1.64)	0.028* (1.64)	0.028* (1.64)
<i>DOA<sub>i,t</sub></i>	-	-0.036* (-1.80)	-0.037* (-1.83)	-0.035* (-1.74)
<i>CLR<sub>i,t</sub></i>	+	0.007 (0.31)	0.007 (0.32)	0.006 (0.26)
<i>CAR<sub>i,t</sub></i>	+	0.021* (1.70)	0.022* (1.71)	0.021* (1.68)
<b>Regression details</b>				
Clustering (Firm)		YES	YES	YES
Industry FE		YES	YES	YES
Year FE		YES	YES	YES
Observations		1,171	1,171	1,171
Brands		265	265	265
R <sup>2</sup>		0.687	0.687	0.687
Adjusted R <sup>2</sup>		0.677	0.676	0.677

Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). The results presented in the table are after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level. *BSP*, *BESP* and *BSSP* are all lagged variables (n-1).

## 4.2 Results for H<sub>2</sub>

### 4.2.1 Descriptive statistics

Table 5 shows descriptive statistics for the variables in regression (IV) for H<sub>2</sub>. The mean of the implied fluctuations in profitability was 0.038 and the standard deviation is 0.040. The reason why the standard deviation is lower for all independent variables, compared to when examining H<sub>1</sub>, is because the variables are rolling averages.

**Table 5:** Summary statistics for H<sub>2</sub>

<b>Variables</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<i>ProfFluc</i>	922	0.038	0.040	0	0.309
<i>AvgBSP</i>	922	0.340	0.176	0.114	0.955
<i>AvgROA</i>	922	0.076	0.112	-0.340	0.505
<i>AvgDOA</i>	922	0.580	0.217	0.001	0.992
<i>AvgSalesGrowth</i>	922	0.067	0.145	-0.293	1.312
<i>AvgFirmSize</i>	922	14.102	2.108	7.727	20.055

*ProfFluc*, *AvgROA* and *AvgSalesGrowth* are all based on yearly observations that has been winsorized at 1st and 99th percentile.

### 4.2.2 Results of a univariate analysis

The result from a Pearson's pairwise correlation matrix for the variables used in regression (IV) model for H<sub>2</sub> is presented in Table 6. The results indicate significant pairwise correlations between all independent variables and *ProfFluc*. Thus suggesting (1), an indication of a negative association between *AvgBSP* and *ProfFluc* and (2), that the control variables used in the regression are relevant. However, the result also exposes significant intercorrelation between the independent variables and thus, multicollinearity may distort the results. To address this, a VIF-test was carried out finding that the model is not subject to any concerning degree of multicollinearity. We analyse this further in section 4.4.1.

**Table 6:** Pearson's correlation matrix for regression (IV) run for H<sub>2</sub>

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) <i>ProfFluc</i>	1.000					
(2) <i>AvgBSP</i>	-0.080***	1.000				
(3) <i>AvgROA</i>	-0.135***	0.125***	1.000			
(4) <i>AvgDOA</i>	0.097***	0.072**	-0.012	1.000		
(5) <i>AvgS.Growth</i>	0.116***	0.032	0.095***	0.052	1.000	
(6) <i>AvgFirmSize</i>	-0.240***	0.215***	-0.057*	-0.056*	0.021	1.000

The table presents the Pearson correlation coefficients between variables included in regression model 2. Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). The results presented in the table are after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level. *AvgS.Growth* is short for *AvgSalesGrowth*.

#### 4.2.3 Results of a multivariable analysis

The results of our regression (IV) for H<sub>2</sub> is presented in Table 7 on the next page. The results from regression (V) and (VI) are discussed in section 4.3. Regression (IV) yields a coefficient of -0.009 for *AvgBSP* and a t-statistic of -0.31 implying that the negative association is not statistically significant. Consequently, the null hypothesis cannot be rejected at any level of significance. All control variables, except *AvgDOA*, have a significant negative coefficient. The adjusted R<sup>2</sup> is 0.169 in our model which implies that the independent variables can explain 16.9% of the variability in our dependent variable.

#### 4.2.4 Results of the robustness tests for H<sub>2</sub>

Even though the main regression did not yield any significant results, we test the sensitivity of the results. As depicted in Appendix 7, the robustness tests for varying the lengths of rolling years do not yield any statistically significant results either. It can be noted that when running regression (XV) on 4-rolling years, we have 705 observations and when running regression (XV) on 5-rolling years, the same number drops to 517 observations. This can be compared to the 922 observations for three rolling years used in regression (IV).

**Table 7:** Regression results for H<sub>2</sub>

Dependent:		<i>ProfFluc</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>		
Regression nr.		(IV)	(V)	(VI)
Independent variables:	Expected sign:	(H <sub>2</sub> )	(H <sub>3b</sub> )	(H <sub>3b</sub> )
<i>AvgBSP</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	-	-0.009 (-0.31)		
<i>AvgBESP</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	-		-0.007 (-0.39)	
<i>AvgBSSP</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	-			-0.010 (-0.31)
<i>AvgROA</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	-	-0.068** (-3.46)	-0.069*** (-3.46)	-0.069*** (-3.46)
<i>AvgFirmSize</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	-	-0.003*** (-2.83)	0.004*** (-2.86)	-0.004*** (-2.83)
<i>AvgS. Growth</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	+	0.031 (1.40)	0.031 (1.40)	-0.031 (1.40)
<i>AvgDOA</i> <sub><i>i</i>,(<i>t</i>-2)-<i>t</i></sub>	+	0.018* (1.83)	0.018* (1.83)	0.018* (1.81)
<b>Regression details</b>				
Clustering (Firm)		YES	YES	YES
Industry FE		YES	YES	YES
Year FE		YES	YES	YES
Observations		922	922	1,191
Brands		265	265	265
R <sup>2</sup>		0.198	0.1984	0.198
Adjusted R <sup>2</sup>		0.169	0.1686	0.169

Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). The 3-year rolling averages are based on yearly observations after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level.

### 4.3 Results for H<sub>3</sub>

First of all, descriptive statistics for the three variables *BSP*, *BESP* and *BSSP* is presented in Table 8. The table show that the mean for *BSP*, *BESP* and *BSSP* is 0.340, 0.182 and 0.157 respectively, thus suggesting that a greater percentage of Swedish consumers are positive towards firm's environmental sustainability efforts compared to their social sustainability

efforts. We further note that the high mean of *BSP* is derived from the fact that *BSP* is the aggregated number of *BESP* and *BSSP* and is therefore scaled differently (0%-200% instead of 0%-100%), implying that we should be careful when comparing the betas of the three variables.

**Table 8:** Summary statistics for  $H_3$

Variables	Obs.	Mean	Std. Dev.	Min	Max
<i>BSP</i>	1,455	0.340	0.183	0.086	1.216
<i>BESP</i>	1,455	0.182	0.110	0.034	0.705
<i>BSSP</i>	1,455	0.158	0.078	0.038	0.510

Secondly, the calculations for our Z-tests for  $H_{3a}$  and  $H_{3b}$  are presented in Table 9 below. The values of -0.602 and 0.095 for  $Z_a$  and  $Z_b$  respectively imply that we cannot reject neither of the two null hypotheses at any reasonable level of significance.

**Table 9:** Results for hypothesis  $H_{3a}$  and  $H_{3b}$

	$H_{3a}$	$H_{3b}$
$H_0$ :	$\beta_{BESP} = \beta_{BSSP}$	$\beta_{AvgBESP} = \beta_{BSSP}$
Formula for Z-value	$Z_a = \frac{\beta_{BESP} - \beta_{BSSP}}{\sqrt{SE\beta_{BESP}^2 + SE\beta_{BSSP}^2}}$	$Z_b = \frac{\beta_{AvgBESP} - \beta_{AvgBSSP}}{\sqrt{SE\beta_{AvgBESP}^2 + SE\beta_{AvgBSSP}^2}}$
Calculation	$\frac{0.047 - 0.080}{\sqrt{0.001 + 0.002}}$	$\frac{(-0.007) - (-0.010)}{\sqrt{0.000 + 0.001}}$
Final Z-value	-0.602	0.095
Rejection of null hypothesis at 1% significance level	NO (2.576 > -0.602 > -2.576)	NO (2.576 > 0.095 > -2.576)
Rejection of null hypothesis at 5% significance level	NO (1.960 > -0.602 > -1.960)	NO (1.960 > 0.095 > -1.960)
Rejection of null hypothesis at 10% significance level	NO (1.645 > -0.602 > -1.645)	NO (1.645 > 0.095 > -1.645)

The input for the formula in column ( $H_{3a}$ ) is gathered from the regression (II) and (III) while the input for the formula in column ( $H_{3b}$ ) is gathered from regressions (V) and (VI).

## 4.4 Diagnostic tests

### 4.4.1 Multicollinearity

Despite our Pearson's correlation matrices not suggesting any apparent multicollinearity, we ensure that our results are not distorted by investigating the variance inflation factor (VIF). Many scholars, such as Pallant (2011) and Barnett and Salomon (2012), argue that individual variables' VIF should be no greater than 10 to be considered acceptable. As shown in Appendix 9, almost all of our VIF-values, are close to 1, the highest being 3.71 (*CLR* for  $H_1$ ). These are relatively high values but given the high acceptable value of 10 presented by the scholars in previous literature we assume that neither our results from  $H_1$  nor  $H_2$  suffer from any serious multicollinearity.

### 4.4.2 Serial correlation

When the residuals are correlated over time, the model might suffer from serial correlation causing bias in the standard errors. Such correlation violates the Gauss-Markov assumptions and implies that OLS estimators are no longer the best linear estimators (Wooldridge, 2009). In order to test for this in our regression models, we have performed a Wooldridge test suited for panel data. The test's null hypothesis is that the model has no first-order autocorrelation. When running the test for *Prof* as dependant variable and *BSP*, *PastProf*, *FirmSize*, *SalesGrowth*, *DOA*, *CLR* and *CAR* as independent variables, we can reject the null hypothesis at a 5% significance level. When performing the same test with *ProfFluc* as dependent variable and *AvgBSP*, *AvgFirmSize*, *AvgDOA*, *AvgROA* and *AvgSalesGrowth* as independent variables, the null hypothesis can also be rejected at a 5% significance level. This suggests that serial correlation is present in the models for both  $H_1$  and  $H_2$ . To address such serial correlations, we have clustered the standard errors in the regressions by firm, a variable generated by the unique organisation numbers for each firm.

## 5. Discussion

In this section we will discuss our results. First, we discuss the research methodology and secondly, the results of the study. The latter part will include a discussion of the hypotheses, robustness tests and control variables.

## **5.1 Research method**

### **5.1.1 Data selection**

Bryman and Bell (2011) emphasize the importance of the representativeness of sample companies in order to apply results to larger scales. First of all, our study is dependent on secondary data and given the limited transparency of SB Insights brand selection process we cannot ensure that our results are representative for brands in general. Furthermore, the sample provided is relatively small which has implications on the reliability of the results. Lastly, SB Insights categorizes brands into a wide range of industries where some industries in our sample have a significantly higher number of brands, and observations, represented (see Appendix 2). This further decreases the generalizability of our findings. Moreover, the number of respondents of the Sustainability Brand Index was smaller in the first years of the study compared to more recent years (see Appendix 4). As consumers may have become more or less sensitive towards sustainability efforts, our results may be somewhat skewed as the most recent observations represent a larger weight of our sample.

### **5.1.2 Issues relating to measuring brand's financial performance**

A challenge with the study is how to connect a brand's financial performance to the financial data available, since some brands in our dataset are owned by large conglomerates. In such case, the connection between how consumers perception of a brand is captured in the financial performance data used in the study may be weak. However, this measurement issue only applies to a few firms in our sample and thus the effect of potentially including some inappropriate observations will likely not bias the results of our study in a meaningful way. Moreover, we find it somewhat reasonable that the level of perceived brand sustainability also, at least to some degree, permeate its firms. At last, the problem of repeated values due to more firms than brands is technically addressed by clustering standard errors by the group variable *Firm*.

### **5.1.3 Issues relating to measuring BSP**

Given the subjective nature of a consumer's perception of a brand, we recognize that there are flawed elements of using such measure. For instance, when considering how sustainable one perceives a brand to be, the answer may be highly influenced by how much one likes the brand in general, rather than solely the sustainability aspect, giving rise to unwanted biases. Thus, the

study may rather capture how the factors of general brand reputation influences financial performance.

## 5.2 Analysis of results

### 5.2.1 Hypothesis 1

In regression (I), our independent variable, *BSP*, has a coefficient of 0.031 and a t-statistic of 2.23 leading to a rejection of the null hypothesis at a 5% significance level. The regression results support our hypothesis that *BSP* has a positive association with financial returns. This finding is in line with previous literature by Orlitzky et al. (2003) suggesting that sustainability reputation correlates positively with financial performance. Additionally, it is also in line with claims by Fombrun and Shanley (1990) that being responsive to social issues increases goodwill and corresponds to better financial performance. As our study measures reputation directly through consumer perception, the results of the association are, to the best of our knowledge, unique. However, it should be noted that no further analysis can be made regarding the nature of the association explored in our study.

The overall results from our robustness tests for  $H_1$  indicate that caution has to be applied before drawing any conclusions. Firstly, the results from regression (XI) where *PastProf* is excluded yielded insignificant results since the t-statistic declined and thus, we conclude that the rejection of the null hypothesis is highly dependent on which control variables are included. Furthermore, the exclusion of *PastProf* leads to a drop in the adjusted  $R^2$  from 0.677 to 0.099, suggesting that the variable *PastProf* is a significant explanatory factor of the model.

Secondly, using ROE as a proxy for financial return did not generate a significant coefficient for *BSP*. We conclude that the level of correlation between *BSP* and *Prof* is highly dependent on how you measure *Prof*. As Bozyel and Salah (2017) highlight, when exploring relationships between non-financial and financial metrics, such reliability issues can arise. Moreover, despite ROE being winsorized at a high 5th and 95th percentile, it takes on a considerably higher range of values (standard deviation of 2.344) than ROA does (standard deviation of 0.125). This is one plausible reason for why the measure of ROE generates so different results compared to ROA in our study. Consequently, we believe that the high occurrence of extreme values for ROE in our sample make it an inappropriate profitability measure for this study. A summary

of the differently winsorized variables and their descriptive statistics can be found in Appendix 10.

Regarding the different lags for *BSP*, results are insignificant for regression (VIII) and (X), implying that no conclusions can be made for the no-lagged regressions. What is interesting is that both regression (IX) and (XII) with the 2-year lagged *BSP* yield statistically significant coefficients regardless if you include *PastProf* as a control variable or not. This finding support Ittner and Larcker (1998) concept of sticky sustainability measures.

At last, looking at the Pearson's correlation matrix in Table 4 we can see that *FirmSize* is significantly positively correlated with *BSP*. Without drawing any conclusions, we note that this finding is in line with the claim by Waddock and Graves (1997) saying that large companies are more frequently engaged in sustainability activities.

### **5.2.2 Hypothesis 2**

Table 7 shows that in the regression results for  $H_2$ , the main independent variable, *AvgBSP*, has an insignificant coefficient of -0.009 with a t-statistic of -0.31. Consequently, the regression results do not support our hypothesis that BSP has a negative association with financial risk. Thus, it does not support the relationships between CSP measures and firm risk that have been identified in previous studies (Spicer, 1978; Aupperle et al., 1985; Orlitzky and Benjamin, 2001). However, the meta-study of Orlitzky et al. (2001) suggests that CSP is less correlated with measures of accounting-based measured risk than it is with measures of market risk. This implies that the insignificant results of our study may be derived from the definition of firm risk used.

Furthermore, it appears as if the insignificant results are not affected by how many years used for the rolling variables since none of the robustness tests that account for this lead to a rejection of our null hypothesis.

### **5.2.1 Hypothesis 3a and 3b**

The results, presented in the descriptive statistics in Table 2, show that the mean for *BESP* and *BSSP* was 0.182 and 0.158 respectively with standard errors of 0.110 and 0.078. The noticeable difference in the means are in line with Catlin et al.'s (2017) finding, being that consumers

perceive the environmental and the social dimensions differently. If they did not, the consumers would give the exact same score for BSSP as they did for BESP.

Furthermore, when looking at the results from regression (II) and (III) in Table 4, we find that the coefficients for *BSSP* and *BESP* are both positive at a 5% significance level. When analysing the t-statistics, 2.43 for *BSSP* and 2.04 for *BESP*, one interpretation of the values could be that the positive association with *Prof* is more significant for *BSSP* than it is for *BESP*. However, the Z-test for  $H_{3a}$  generates a Z-value of -0.602 meaning that the null hypothesis cannot be rejected at any reasonable level of significance. Therefore, our study does not support  $H_{3a}$ , being that there is a difference between how consumer perception of a brand's social sustainability and environmental sustainability, is associated with financial returns.

We also conclude that the same test performed for  $H_{3b}$  gave an insignificant Z-value of 0.095. However, such Z-value becomes irrelevant as neither *AvgBSSP* nor *AvgBESP* were found to be significantly correlated with *ProfFluc* in  $H_2$ . The lack of significant correlation implies that the magnitude of those two correlations cannot be compared. All in all, our study does not find support for  $H_{3a}$  or  $H_{3b}$ .

## 6. Conclusion

Our study aims to explore the association between consumer BSP and financial performance. In order to address the research question, two regression models and two Z-tests were conducted.

Firstly, evidence was found indicating a support for  $H_1$ , being that BSP is positively associated with profitability. The results of the regressions for  $H_1$  were significant on a 5% level. However, the robustness tests suggest that the results are sensitive to which control variables are included, if *BSP* is lagged or not and to how *Prof* is defined, making the evidence less conclusive. The fact that the significance of our results for  $H_1$  varies so much depending on changes in the model specifications suggest that our model's estimated effect size is rather large and that the aspect of validity for inferences is critical. Moreover, since our exact research question has not been addressed in previous research, attempting to validate the results becomes difficult. However, the results are in line with studies suggesting that corporate reputation

ratings are positively related to financial returns (McGuire et al. 1988; Fombrun and Shanley, 1990; Russo and Fouts, 1997; Orlitzky et al., 2003).

Regarding the reliability of the findings for  $H_1$ , others should be able to replicate the study given the assumptions described and that the research method used is based on previous studies. The fact that the signs for all of the statistically significant coefficients of the control variables in regression (I) are consistent with what previous literature suggested strengthens the reliability of our results. It should however be noted that the relationship identified in this study is restricted to Swedish firms and consumers and may not apply elsewhere. Regarding generalizability, we cannot ensure that our results are representative for all brands in all industries since our study is dependent on secondary data. Nor can we ensure that respondents that were surveyed for the BESP, BSSP and BSP accurately represent the population of Swedish consumers.

At last, it should be noted that any further analysis regarding the nature of the association found in this paper is unfeasible since, we for instance, have not eliminated the risk of a reverse causality between BSP and financial performance.

The results for  $H_2$  were not statistically significant and thus, no further analysis can be provided on the association between BSP and financial risk. Lastly, the study does not find any support for either  $H_{3a}$  or  $H_{3b}$ , being that the environmental and the social dimensions impact financial performance with different magnitude, since its null could not be rejected at any reasonable level of significance.

The subject of this study is of interest to a number of stakeholders, in particular investors and managers engaged in sustainability that are in need of evaluating the sustainability concepts' associated costs and benefits. The results suggest that brands that are being perceived as more sustainable also tend to generate greater financial returns. Thus, our results are in line with the suggestion by Orlitzky et al. (2003), that managers should be aware of third-party perceptions and make investments into reputation building.

## 7. Suggestions for future research

Conducting this study has shed light on several areas we believe are of particular interest for future research. First of all, we believe that the limited amount of data available related to the research question has been the bottleneck historically for conducting similar studies. As more data on sustainability metrics, such as consumer sustainability perception, becomes available, the topic can be researched more extensively. For instance, it would be interesting to examine how consumer BSP relates to financial risk using market risk data rather than accounting-based measures of risk. Moreover, the scope of this study was only extended to the Swedish market and there is a high environmental consciousness in Sweden (WWF, 2015). Thus, we would be careful applying our result on other countries. Acknowledging that there are differences among consumers and firms across countries, we suggest future research to apply the data on other countries' BSPs to explore the same research question. This would allow for more generalized conclusions and insightful comparisons between the countries.

Additionally, although the study included brands from a wide range of industries, our results have not considered industry differences. Our significant results for  $H_1$  are applicable for our entire sample but not for all of our sub-samples if separated by industry. We hypothesize that the level of correlation between *BSP* and financial performance varies among industries. See for instance the industry labelled 'clothing & shoes' in Appendix 11, where the relationship seems notably strong. Therefore, we propose future studies to apply our research question on sub-samples of different industries to examine whether consumers BSP may be more or less correlated with firm profitability depending on the industry of the firm. Given the noticeable relationship illustrated in Appendix 11, we further propose that industries associated with consumer-goods and retail may be of particular interest.

Finally, believe the lack of previous research on consumer sustainability perception is due to the lack of appropriate and reliable data. Since the Brand Sustainability Index is an annually conducted report, more BSP data is becoming available. Soon, historical comparisons can be made where future studies can create sub-samples of different time periods and compare the findings. One particularly interesting comparison would be to see if the association between BSP and profitability is stronger for the post-Greta years compared to the pre-Greta years. Such a finding would have the potential to provide evidence for 'The Greta Effect' as well as her bold statements made at COP25, quoted in the introduction of this paper.

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## 9. Appendix

### Appendix 1: Observations divided by industry

Industry	Obs.	Industry	Obs.	Industry	Obs.
Airlines	22	Food	263	Logistics	12
Banks	8	Fuel	43	Other	3
Beauty	7	Furnitures	96	Pensions	8
Clothing&Shoes	179	Games	3	Services	19
ConsumerGoods	20	Logistics	12	Tech	138
Digital	14	GroceryStores	71	Telecom	40
Electricity&Heat	72	Hotels	61	Train&Boat&	102
Farmacy	31	Housing	2	Travelling	18
FastFood	63	Insurance	16	Veicles	144
<b>Sum: 1,455</b>					

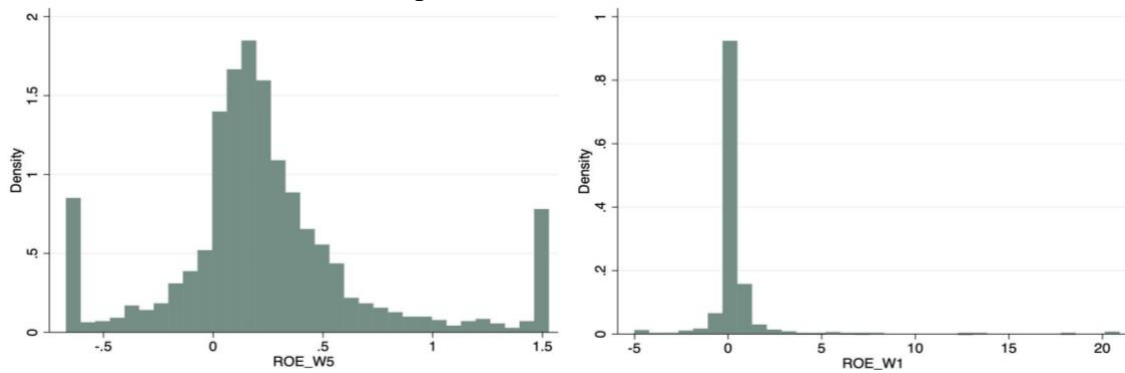
Source: SB Insights, 2019

### Appendix 2. Number of respondents for the Brand Sustainability Index Reports

Year	Countries included	# of respondents	# of brands	# of brands included in the Swedish report
2011	SE	3000	151	134
2012	SE	8000	200	178
2013	SE, NO, DK, FI	18000	450	213
2014	SE, NO, DK, FI	25000	636	228
2015	SE, NO, DK, FI	27000	709	243
2016	SE, NO, DK, FI	30000	750	264
2017	SE, NO, DK, FI, NL	36000	940	291
2018	SE, NO, DK, FI, NL	44400	1064	325
2019	SE, NO, DK, FI, NL	50000	1148	355

Source: SB Insights, 2020

**Appendix 3.** Histogram of ROE winsorized at 5th and 95th percentile (left) compared to ROE winsorized at 1st and 99th percentile

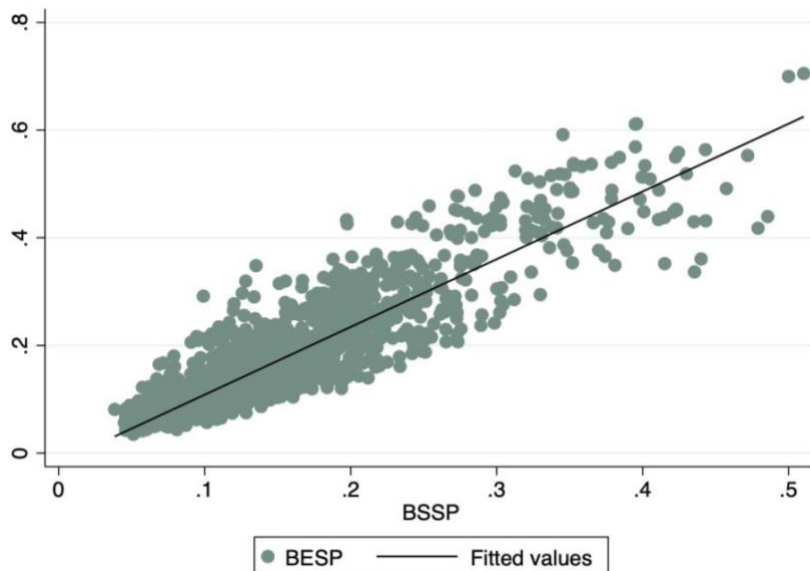


**Appendix 4.** Regression results of *ProfFluc* and *Prof*

Dependant:		$ProfFluc_{i,(t-2)-t}$	
Regression nr.		(VII)	
Independent	Coef.	Std. Err.	
$Prof_{i,t}$	-0.024** (-2.20)	0.011	
Cons.	0.040*** (25.95)	0.002	

*ProfFluc* is 3-year rolling standard deviations and based on yearly observations of ROA and ROA that has been winsorized at 1st and 99th percentile.

**Appendix 5.** Scatterplot with fitted line between *BSSP* and *BESP*



**Appendix 6.** Regression results for robustness tests of  $H_1$ : testing the effect of (1) excluding *PastProf*, (2) ROE as proxy for *Prof* and (3) different magnitude of lags for *BSP*

Dependent ( $Prof_{i,t} =$ ):		$ROA_{i,t}$						$ROE_{i,t}$
Regr. nr.		(VIII)	(I)	(IX)	(X)	(XI)	(XII)	(XIII)
Lagged regressions		No-year lag	1-year lag	2-year lag	No-year lag	1-year lag	2-year lag	1-year lag
Independent variables:	Expected sign:							
$BSP_{i,t}$	+	0.024 (1.56)			0.067 (1.40)			0.005 (0.07)
$BSP_{i,t-1}$	+		0.031** (2.23)			0.073 (1.52)		
$BSP_{i,t-2}$	+			0.037** (2.45)			0.084* (1.66)	
$PastProf_{i,t}$	+	0.795*** (28.23)	0.795*** (28.24)	0.794*** (23.16)				0.739*** (17.82)
$FirmSize_{i,t}$	+	-0.001 (-0.69)	-0.001 (-0.80)	-0.001 (-0.36)	0.005 (0.99)	0.002 (0.40)	0.002 (0.35)	0.004 (0.64)
$S.Growth_{i,t}$	+	0.028* (1.64)	0.028* (1.64)	0.042** (2.56)	0.029 (1.54)	0.035* (1.62)	0.043** (2.34)	0.096** (2.19)
$DOA_{i,t}$	-	-0.036* (-1.81)	-0.036* (-1.80)	-0.037* (-1.84)	-0.112*** (-2.47)	-0.119** (-2.24)	-0.136** (-2.37)	-0.087 (-0.85)
$CLR_{i,t}$	+	0.008 (0.33)	0.007 (0.31)	0.013 (0.55)	0.067 (1.02)	0.073 (0.98)	-0.093 (1.16)	0.209* (1.64)
$CAR_{i,t}$	+	0.021* (1.67)	0.021* (1.70)	0.013 (1.03)	0.050 (1.12)	0.043 (0.90)	0.031 (0.65)	0.071 (1.16)
<i>Regression details</i>								
Clustering (Firm)		YES	YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES	YES
Year FE		YES	YES	YES	YES	YES	YES	YES
PastProf		Incl.	Incl.	Incl.	Excl.	Excl.	Excl.	Incl.
Observations		1,171	1,171	1,171	1,171	1,171	1,171	1,171
Brands		265	265	265	265	265	265	265
R <sup>2</sup>		0.686	0.687	0.695	0.104	0.127	0.140	0.631
Adjusted R <sup>2</sup>		0.676	0.677	0.683	0.080	0.099	0.107	0.619

The table shows the regression results from robustness tests for hypothesis 1. Note that the second column of results show results from regression nr. 1, being the same as our main regression. *S.Growth* is short for *SalesGrowth*. Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). The results presented in the table are after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level while *ROE* has been winsorized at a 5% and 95% level.

**Appendix 7.** Regression results for H<sub>2</sub> robustness tests: testing for different rolling years

Dependent:		<i>ProfFluc</i>		
Regression nr.		(IV)	(XIV)	(XV)
# rolling years		3-years	4-years	5-years
Independent variables:	Expected sign:			
<i>AvgBSP</i>	-	-0.009 (-0.31)	-0.005 (-0.14)	0.008 (0.17)
<i>AvgROA</i>	-	-0.068** (-3.46)	-0.056** (-2.43)	-0.066** (-2.32)
<i>AvgFirmSize</i>	-	-0.003*** (-2.83)	-0.003** (-2.35)	-0.003* (-1.81)
<i>AvgSalesGrowth</i>	+	0.031 (1.40)	0.026 (1.05)	0.022 (0.86)
<i>AvgDOA</i>	+	0.018* (1.83)	0.020* (1.66)	0.024* (1.76)
<i>Regression details</i>				
Clustering (Firm)		YES	YES	YES
Industry FE		YES	YES	YES
Year FE		YES	YES	YES
Observations		922	705	1,191
Brands		265	265	265
R <sub>2</sub>		0.198	0.193	0.219
Adjusted R <sub>2</sub>		0.169	0.157	0.172

Coefficients statistical significance at 10%, 5% and 1% are marked with \*, \*\* and \*\*\* respectively (two-tailed). All rolling averages are based on yearly observations after winsorizing *Prof* and *SalesGrowth* at the 1% and 99% level.

**Appendix 8.** Collinearity Statistics for  $H_1$  and  $H_2$ : VIF tests

$H_1$			$H_2$		
Dependent variable:	VIF	1/VIF	Dependent variable:	VIF	1/VIF
<i>Prof</i>			<i>ProfFluc</i>		
<i>BSP</i>	1.07	0.931	<i>AvgBSP</i>	1.07	0.937
<i>DOA</i>	3.03	0.330	<i>AvgFirmSize</i>	1.05	0.949
<i>CLR</i>	3.72	0.028	<i>AvgROA</i>	1.03	0.970
<i>CAR</i>	1.66	0.604	<i>AvgDOA</i>	1.02	0.985
<i>FirmSize</i>	1.35	0.738	<i>AvgSalesGrowth</i>	1.01	0.987
<i>SalesGrowth</i>	1.02	0.972			
<i>PastProf</i>	1.03	0.972			
Mean VIF: 1.84			Mean VIF: 1.04		

**Appendix 9.** Descriptive statistics for the different profitability proxies

Variables	Obs.	Mean	Std. Dev.	Min	Max
<i>ROA(W1)</i>	1,455	0.073	0.125	-0.444	0.556
<i>ROE</i>	1,455	1.756	22.646	-23.422	634.783
<i>ROE(W1)</i>	1,455	0.523	2.344	-5.554	17.987
<i>ROE(W5)</i>	1,455	0.261	0.512	-0.809	1.661

W1 means the variable has been winsorized at 1st and 99th percentile while W5 means the variable has been winsorized at 5th and 95th percentile.

**Appendix 10.** Scatterplot between *BSP* and *Prof* for observations within the ‘Clothing & Shoes’ industry.

